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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,772	12/29/2000	Stephen S. Selkirk	00-062-DSK	8708

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EXAMINER
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CHEN, TE Y

ART UNIT	PAPER NUMBER
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2171

DATE MAILED: 01/02/2004

11

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/751,772

Applicant(s)

SELKIRK ET AL.

Examiner

Susan Y Chen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/08/2003 has been entered.

This is in response to amendment filed on 10/08/2003 (paper # 10).

Claims 12-32 are pending for examination, claims 1-11 have been canceled.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12 and 32, are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of:

(1) whether the invention is within the technological arts; and

(2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological art. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) that do not apply, involve, use, or advance the technological art fail to promote the "progress of science and the useful arts" (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a method claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts.

As to technological arts recited in the preamble, mere recitation in the preamble (i.e., intended or field of use) or mere implication of employing a machine or article of manufacture to perform some of the recited steps does not confer statutory subject matter to an otherwise abstract idea unless there is positive recitation in the claim as a whole to breathe life and meaning into the preamble. In *Bowman* (*Ex parte Bowman*, 61 USPQ2d 1665, 1671 (BD. Pat. App. & Inter. 2001) (Unpublished), the board affirmed the rejection under U.S.C. 101 as being directed to non-statutory subject matter. Although *Bowman* discloses transforming physical media into a chart and physically plotting a point on said chart, the Board held that the claimed invention is nothing more than an abstract idea, which is not tied to any technological art or environment.

In the present case, although claims 12 and 32 both recite an abstract idea at the preamble for mapping a virtual address space into block address of a set of data storage device, however, the steps in the claim body merely applying a correlation scheme to associate physical data entry in a storage device with a virtual address

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space, which can be implemented by the mind of a person or by the use of a pencil and paper. In another words, since the claimed invention, as a whole, is not within the technological arts as explained above, these claims only constitute an idea and does not apply, involve, use, or advance the technological arts, thus, it is deems to be directed to non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12-32, are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,532,527 issued to Selkirk et al. (hereinafter referred as Selkirk '527).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

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Claims 12 & 32 :

Selkirk '527 discloses:

- generating a hierarchical data structure/table in a primary storage  
[e.g., Step 514, Fig. 5; Fig. 8; col. 3, lines 40-42; col. 10, lines 35-40];
- the hierarchical data structure includes a plurality of layers arranged  
according to a hierarchy [e.g., col. 10, lines 38-51];
- each data entry in each layer represents a range of the virtual address  
[e.g., Fig. 5, 7, 9 & 10];
- each data entry is correlated to a set of data entries in the next lowest  
layer [e.g., col. 10, lines 52- col. 11, line 5];
- each data entry in the lowest layer corresponds to both a virtual  
address range and a block address corresponding the a physical data  
block in the at least one data storage device [e.g., col. 11, lines 6-34,  
Figs. 9-10];
- each data entry within the primary storage corresponds to a currently  
occupied virtual address range, such that none of the data entries  
corresponds to only unused physical storage [see the erase gap  
processing, col. 12, lines 5-26];
- each physical data block in the at least one data storage device  
contains virtual address information that identifiers at least one  
corresponding location in the virtual address space for that physical

data block [e.g., see the Hash algorithm to map a virtual address space for a physical storage data block; col. 11, lines 35-48].

Claim 13:

Selkirk '527 further discloses swapping sub-hierarchies of data entries between the hierarchical data structures as claimed [e.g., see col. 11, lines 16 – 21, lines 28-34].

Claim 14:

Selkirk '527 further discloses at least some of the data entries in the lowest layer include a device address identifying an individual storage device in the at least one data storage device [e.g., 808, Fig. 8, col. 11, lines 22-27].

Claim 15:

Selkirk '527 further discloses the correlation schema is a hash algorithm [e.g., 902, 904, Fig. 9].

Claim 16:

Selkirk '527 further discloses at least some of the data entries in each layer represent virtual address ranges of a homogeneous size corresponding the that layer [the load point and offset section 906, Fig. 9].

Claim 17: Selkirk '527 further discloses crating a second data structure to identify exceptional data entries in the hierarchical data structure, such that the exception data entry correspond to a virtual address size that differs from the homogeneous size [e.g., the exception flags, col. 10, lines 9-16; lines 29-34].

Claim 18: Selkirk '527 further discloses the virtual address space information identifies a plurality of corresponding locations in the virtual address space for the physical data block [e.g., the Virtual Track table 702 and the Virtual Track Number table 704, Fig. 7].

Claims 19-32: these claims recite the same features as claim 12-18, in form of computer program product media and computer data system, hence are rejected for the same reason.

### ***Response to Arguments***

Applicant's arguments with respect to claims 12-32 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Y Chen whose telephone number is (703) 308-1155. The examiner can normally be reached on Monday - Friday from 7:00-4:30.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (703) 308-1436. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-6296.

Susan Chen  
Dec. 22, 2003

  
UYEN LE  
AU 2171